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SEVERE SPASMODIC CONTRACTION OF A FINGER CURED BY STRETCHING THE MEDIAN NERVE.

BY JAMES ADAMS, M.D. ABERD., F.R.C.S. ENG.

A WOMAN, aged 45 years, a widow who earned her living by needlework, came under my observation in November, 1905, for extreme contraction of the middle finger of the right hand. She gave the following history. In December, 1902, she pricked the thumb of her left hand and it became swollen, tender, and inflamed, and it suppurated. As it did not improve but on the contrary got much worse she went to University College Hospital, London, in January, 1903, and remained there for two months, all the fingers and hand becoming involved in what was evidently a septic infection. The fingers and hand were freely incised and drained and the patient was discharged in March with drainage-tubes still in. She returned to the hospital in the following May with the wounds unhealed and the mischief spreading further and amputation was performed at the middle of the forearm. The surgical registrar of the hospital, Mr. O. L. Addison, has sent me the report of her case. He says: "The patient was admitted to University College Hospital with a septic infection of the palmar sheaths and cellulitis of forearm following a poisoned wound of the thumb. The arm had to be amputated to prevent further extension of the suppuration."

In February, 1905, the middle finger of the right hand began to contract, and in November the patient was admitted under me to the union infirmary with the finger badly contracted. There were no signs of disease in the finger. With much force and some difficulty I could extend the finger fully but it gave her great pain to allow me to do it and

when freed the finger at once returned to its state of rigid contraction with the tip firmly fixed in the palm. Before admission the finger had been treated in various ways without success and after admission I tried internally anti-rheumatic and anti-gouty medicines and iodide of potassium in large doses ; also locally I ordered hot brine baths, liniments, ointments, massage, &c., as well as applying splints to the palmar surface by which I could keep the finger extended, but all without the least benefit. It was very painful to the patient to have it kept in a position of complete extension and it also proved useless, for when the splint was removed the finger at once re-contracted. After six weeks' treatment with no result the patient begged me to amputate the finger as it was so inconvenient to her, besides preventing her from earning her living. Accordingly, in January, 1906, I removed the finger at the metatarso-phalangeal joint with the head of the metatarsal bone. The wound healed normally and quickly and in February she returned home to her work with a useful hand and with the rest of the fingers in a normal condition.

For six months this continued, but in August the ring finger began to contract and in spite of treatment became as bad as the middle finger had been, and in November she was readmitted in order to have this finger also amputated. The condition, appearance, and symptoms were identical with those of the other finger. It was in a state of marked tonic contraction with its tip fixed and kept firmly in the palm. By no effort on her part could she move it, and I could only extend it by using much force and giving her great pain ; on my releasing it the finger returned at once to its vicious position like a strong spring set free. The finger was not swollen, red, or painful, and its sensation was normal, and the other fingers were normal in every way, as were the hand, the forearm, and the upper arm. The patient's general health was excellent, her appetite was good, and she slept well. She is a placid, non neurotic type of woman, dark complexioned, well nourished, and is active and industrious.

To remove a second finger from the hand of a woman of this class, already deprived of her other hand, would be indeed a serious misfortune for her. Instead of again putting her through a course of treatment I showed her at a meeting of the Eastbourne Medical Society, where she was examined thoroughly and with much interest by about 20 members who were present. A suggestion was made that stretching the median nerve might be beneficial and I readily

acquiesced in this, for I was very reluctant to amputate. In December, 1906, I operated. I cut down at the junction of the middle and lower third of the upper arm, making a three-inch incision in the course of the nerve, and at once came on it lying in its normal situation. I separated it from its bed, took it up with my forefinger and thumb, and stretched the distal portion forcibly for four or five minutes, and then the proximal end for the same time. The wound healed kindly and the operation was simple and easy, taking only a short time to do. While under the anæsthetic the finger could be readily extended as was the case in a patient of Professor Nussbaum to whom I shall again refer. Before my patient had recovered from her anæsthesia I put the finger on a palmar splint and kept this up for three weeks, removing it twice a day for passive exercise. At the end of this time I ordered the splint to be kept on by night only for another fortnight and then left it off altogether. For nearly a month the patient had numbness in some of the fingers and disordered sensation in parts of the hand, and, curious to relate, the numbness was in the two fingers supplied by the ulnar nerve—viz., the little and ring fingers—there being no numbness in the thumb and forefinger. Brown-Séquard refers to a similar occurrence as regards sensation when on stretching the sciatic nerve in guinea-pigs the part of the foot innervated by the anterior crural nerve became anæsthetic and sometimes even the leg on the opposite side to that of the operation became also anæsthetic. In one case there were an incomplete paralysis and anæsthesia in the right leg after considerable stretching of the sciatic nerve on the left side. And he adds: "It is clear that the spinal cord is modified by the stretching of a nerve" (Holmes's "System of Surgery," Vol. II.). After leaving off the splint there was no contraction of the finger or tendency to contraction, and three months after the operation I had the satisfaction of showing the case again to the local medical society with the finger cured and the patient possessing a useful hand.

In December, 1907, the patient came to see me and she could bend and extend the finger normally and there was no tendency to contraction; and as a year has elapsed since I stretched the nerve the cure may be regarded as permanent.

The etiology of the case is obscure and I can only state its negative side. It was not a Dupuytren's contraction nor an osteo-arthritic finger, neither was it inflammatory nor a sequel of inflammation, nor gout, nor rheumatism, nor an

example of neuromimesis. The tissues and joints of the finger I amputated were all healthy. The contraction was certainly not organic but was a true spasm and became more violent the more that one attempted to oppose it.

I can find no instance of stretching the median nerve having been done in England for contraction of a finger. Callender relates a case of stretching it for neuralgia, and Morton for athetosis, in which both median and ulnar nerves were stretched with success. The nearest case to mine which I have been able to find is that by Professor Nussbaum. He describes operating on a tuberculous girl, six years of age, in which in the course of a resection of the elbow for ankylosis at an inconvenient angle some traction was exercised upon the ulnar nerve and a spasmodic contraction of the fourth and fifth fingers which had hitherto existed was in consequence completely cured. Professor Nussbaum relates at length in the same article a successful result of stretching the ulnar nerve, and the various branches of the brachial plexus in the axilla for extreme spasmodic contraction of the hand, forearm, and upper arm accompanied by anæsthesia of dorsal aspect of the forearm in a soldier, aged 23 years, the condition being the result of traumatism. In this patient, as in mine, under an anæsthetic all spasmodic action ceased.

Had I stretched the nerve when the patient first came under my treatment I have no doubt that I should have saved the middle finger from amputation, as I have now done the ring finger. No doubt the rarity of such a form of spasmodic contraction in a finger partly accounts for the rarity of the operation, but it forcibly illustrates the utility of such a safe and simple surgical procedure where any one muscle or group of muscles is similarly affected by this form of intractable spasm.

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